

## PHOTOMETRY AND POLARIMETRY OF JUPITER FROM CASSINI ISS: PRELIMINARY RESULTS

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Over the course of about one month the Cassini spacecraft passed through a range of phase angles from 0 to almost 140 degrees. The leisurely pace of this encounter provided opportunities to sample many scattering angles. The Imaging Subsystem (ISS) instrument on Cassini was able to image Jupiter with a variety of continuum filters from the near-UV (effective wavelength 263 nm) to the near-infrared (939 nm). For most of this period Jupiter's diameter spanned more than 1000 pixels (about 2500 pixels during closest approach). The phase angle coverage allows us to expand and update our knowledge of the scattering phase function of the atmospheric haze and cloud particles which provide a diagnostic on particle size and influence radiative energy balance of the stratosphere and upper troposphere. Methane band filters in weak (619 nm) moderate (728 nm) and strong (890 nm) methane absorption bands coupled with nearby continuum filters and with UV filters provide the means for vertical sounding of haze and cloud layers from the stratosphere down to the water cloud region at several bars pressure. Ratio images (619 methane/619 continuum and 728 methane/750 continuum) and the 890 nm images taken in the fall of 2000 show a variety of features, including high stratospheric hazes in the polar regions, elevated clouds in the equatorial zone and in the anticyclonic ovals, and a clearing of the deeper clouds in some but not all of the low-albedo features (hot spots and other regions). We are especially interested in the formation and evolution of polar stratospheric haze features which can be seen in the ultraviolet and methane band images. This encounter is the first opportunity we have had to look at the formation and evolution of the polar stratospheric haze in the ultraviolet where contrasts are most apparent. Polarization images from violet to near-infrared, in and out of methane bands and at a variety of phase angles provide new data to constrain particle properties and vertical structure.